nā leo o ka ʻāina

Voices of the land

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Newsletter of the Hawai'i Department of Land and Natural Resources
Division of Forestry and Wildlife

In This Issue:

DOFAW Employees Given Honors and Recognition as DLNR Employee and Team of the Year

Christen Mitchell, Natural Area Reserves Systems (NARS) Planner, DOFAW

On May 26, 2006 some of the Division of Forestry and Wildlife (DOFAW) employees were recognized by the Board of Land and Natural Resources for thier exemplary initiative and leadership, outstanding work performance, creativity and innovation, and significant contribution to the attainment of program objectives. The Division of Forestry and Wildlife (DOFAW) are proud to have the Big Island Natural Area Reserves (NARS) staff Lisa Hadway, Nick Agorastos, Ian Cole, and Glenn Nihipali recognized as the Team of the Year and Dave Smith, a wildlife biologist working with the Oahu division branch, recognized as the Employee of the Year for the Department of Land and Natural Resources (DLNR).

Achivements of the Big Island NARS team include directly managing the eight natural area reserves on the island of Hawaii and significantly contributing to conservation outside the natural area reserves through participation in partnerships such as the Kohala Watershed Partnership, the Three Mountain

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DLNR Na Ala Hele Trails and Access Manager Irving Kawashima Recieves National Recreational Trails Program Award

Clifford Inn, Education and Outreach Coordinator, DLNR

Irv Kawashima (second to the right) at the awards ceremony in D.C.

HILO — Department of Land and Natural Resources (DLNR) Na Ala Hele trails program manager, Irving Kawashima, has been selected to be a recipient of the 2006 Coalition of Recreational Trails Program (RTP) national achievement award. Kawashima is one of nine national honorees in an awards ceremony that was held in Washington D.C. on June 14, 2006.

DLNR receives over $600,000 in federal RTP funds. A percentage is directed towards motorized recreational use through DLNR's Trail and Access Program, commonly referred to as Na Ala Hele.

Kawashima, with considerable support from off-highway vehicle users on the Big Island, was responsible for the development and management of the Upper Waiakea ATV/Dirt Bike Park in the Waiakea state forest reserve. The Waiakea site was one of nine winning projects selected for most innovative and effective use of the federal RTP funds, in the construction and design/long distance trail category.

"I commend Irv Kawashima and the local Big Island riders who helped DLNR create an award-winning off road riding area,"

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Division of Forestry and Wildlife Updating Natural Area Reserves System Rules

Christen Mitchell
Natural Area Reserves Systems (NARS) Planner

The Natural Area Reserves System (NARS) was established in 1970 to preserve in perpetuity specific land and water areas which support communities of the natural flora and fauna, as well as geological sites, of Hawaii. Since the adoption of the rules regulating the Natural Area Reserves System (NARS) in 1981 (Hawaii Administrative Rules Chapter 13-209), they have been amended only once, as part of a department-wide initiative to regulate commercial activity on public lands. Over the years, there have been occasions where shortcomings in the existing administrative rules have resulted in a failure to efficiently or effectively respond to threats to the natural area reserves. A recent example is the difficulty regulating public use at Ahihi-Kinau NAR and preventing illegal activity such as poaching and squatting in lava caves. The proposed amendments to Chapter 13-209 would improve and enhance the ability of the State to protect the natural area reserves system and the unique biological, geological, and cultural resources found within them.

A short description of the proposed changes and the justification for the change follows:

Permitted activities. The proposed changes to existing section 13-209-3 would remove bedroll camping as a permitted activity and limit hiking and nature study as permitted activities for groups of ten or less. In addition, the proposed change would specify that permitted activities may be limited in closed reserves (or in closed portions of reserves) or in reserves where visiting hours have been established.

These changes are proposed to remove the distinction between bedroll and other camping, a distinction which is not found in other rules of the Division of Forestry and Wildlife. By having the effect of requiring a permit for hiking with groups of more than ten persons in size, the proposed changes would allow better monitoring of large groups and their impact on an individual reserve. Finally, the proposed changes would specify that otherwise permitted activities can be restricted during certain hours or during approved closures.

Prohibited activities. The proposed changes to section 13-209-4 would allow service animals accompanying their masters within the NAR; specifically prohibit the establishment of residences in the NAR; prohibit the possession of tools, equipment, or implements used to take, injure, or kill marine life, plant life or wildlife, except as permitted by the hunting rules of the department; prohibit activities in the NAR by groups larger than ten in number; prohibit presence in a closed NAR or portion of a NAR or after visiting hours; specifically prohibit anchoring in marine waters within a NAR; prohibit entry into any cave in a NAR; and prohibit actions in a NAR inconsistent with the purpose and intent of the NARS system.

The changes are primarily proposed to enhance enforcement of existing rules and increase the ability of the department to protect the NARS from degradation or damage. For example, banning fishing equipment in Ahihi-Kinau NAR would allow the Division of Conservation and Resource Enforcement (DOCARE) officers to cite suspected poachers before they violate existing rules against removing marine life. Likewise, preventing anchoring in a NAR would allow DOCARE or resource managers to prevent potential damage to underwater coral, without having to wait for damage to actually occur to the natural resources. The proposed changes to specifically prohibit the establishment of residences in a NAR and to prohibit entry into caves would address shortcomings in the existing rules that were identified during a recent incident of someone attempting to reside within Ahihi-Kinau NAR. A prohibition on groups larger than ten would allow better monitoring of large groups and their impact on an individual reserve.

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However, it should be pointed out that the proposed changes would not institute a blanket prohibition on these additional activities, but would simply require someone to get a permit before doing an otherwise prohibited use. Finally, adding an exception in the existing rules to permit the presence of service animals would remove a barrier that prevents those using service animals from fully experiencing a NARS.

Temporary closing of reserves. The rule changes propose to add a new rule that would specifically authorize the Board to close or restrict public use of all or any portion of a NAR for up to two years, when deemed necessary by the NARS Commission for the protection of the natural, geological, or cultural resources of a reserve or the safety and welfare of persons or property.

The changes are proposed to give the department another management tool to protect and prevent degradation to the unique natural resources within the NARS and to implement the BLNR policy to protect resources first, to accommodate public use second, and finally where appropriate, to allow commercial use. Limiting any closure to a period of 2 years ensures regular review of the condition and status of the natural resources and continued assessment on whether closure is necessary, so that the public is not unnecessarily excluded from public lands.

Visiting hours. The rule changes propose to add a new rule that would authorize the Board, with the approval of the Commission, to establish a schedule of visiting hours for individual reserves.

The change is proposed to give the department another management tool to address inappropriate night-time activity within a NAR. Instead of setting visiting hours for the NARS system, the proposed rule allows the Board or its authorized representative, with the approval of the Commission, to set a schedule on a reserve by reserve basis, recognizing that a time restriction for one NAR may be inappropriate or unnecessary for another.

Special-use permits procedural changes. The proposed rule changes specify that special use permits are valid for no more than 1 year, outline standard conditions for special-use permits, authorize the addition of special conditions, require permittees to carry permits with them, state that permits are not transferable, outline situations where the Board or its authorized representative may revoke or cancel a permit, and provides additional information about the special-use permit application process.

The proposed changes were recommended by the Attorney General's office to formalize existing policies into rule, providing permit applicants advance notice of conditions and restrictions on special-use permits. The changes were recommended by the Attorney General's office to formalize the permit application process. These changes would provide permit applicants with more complete advance notice of what information is needed by the department to evaluate applications, the criteria used to evaluate applications, and how long the process should take. In addition, these proposed changes would reduce the ability of an unsuccessful applicant to challenge the denial as arbitrary and capricious.

The public hearings on the proposed rule changes were held Statewide on June 28, 2006 at 6:30 pm. Most of the public testimony received before and during the hearing focused on the potential negative impact of the proposed rules on fishing activities offshore of NARs such as Kaena Point where fishing is currently allowed. In response to the initial public comment, the Department presented alternative language at the public hearings that would clarify that the proposed ban on the possession of fishing equipment would apply only to Ahihi-Kinau NAR. After the public hearing, DOFAW will review the public comment and determine if any further changes need to be made to the rules. The revised rules will then be submitted to the NARS Commission and the Board for their approval, before going to the Governor for her approval. For additional information on the proposed rule changes, please contact Christen Mitchell by email at christen.w.mitchell@hawaii.gov or by phone at 587-0051.

An Introduction to the Watershed Partnerships Program at DOFAW

Christine Ogura, Planner,
Watershed Partnerships Program, DOFAW

The first Watershed Partnership was formed in 1991 on East Maui when several public and private landowners realized the benefits of working together to ensure the conservation of a shared watershed that provided billions of gallons of fresh water to the area. Today, Watershed Partnerships continue to be voluntary alliances of public and private landowners committed to the common value of protecting forested watersheds for water recharge and other ecosystem services through collaborative management. There are nine Watershed Partnerships in the State (Maui-3, Molokaʻi-1, Kauaʻi-1, Hawaiʻi-2, Oʻahu-1, and Lānaʻi-1) involving over 40 private landowners and 24 public agencies (including DOFAW) that cover close to one million acres. Not only are these areas vital recharge regions for Hawaii's underground aquifers and a dependable source of clean water for its streams, they are also home to the last remaining native ecosystems in Hawaiʻi and house thousands of native species of animals and plants found no where else on earth. In addition to providing such services, these areas also provide an opportunity for the education of children about Hawaii's unique environments and conservation related jobs.

At the Division of Forestry and Wildlife (DOFAW), the Watershed Partnerships Program was established to provide statewide support to these partnerships as well as to develop new partnerships. The program also administers a grant program to support implementation of management plans developed by these partnerships. Last year this grant program provided a total of $367,480 to eight different watershed partnership initiatives across five islands. In addition, this program also provides support to the Hawaiʻi Association of Watershed Partnerships (HAWP). Established in 2003 to build public and private support for watershed protection, HAWP represents the Watershed Partnerships and works to develop the capacity of these partnerships to manage and protect our native forested watersheds. One way in which HAWP accomplishes this is to organize a yearly symposium to bring all the members of the various partnerships as well as other engaged organizations and individuals together to address issues concerning the conservation and management of such areas. This year, the symposium will be held on Oʻahu on October 19th and further details can be found later at http://www.hawp.org. If you have any questions about the Watershed Partnerships Program, please contact Christine Ogura, watershed planner, at 808-587-0058 or Christine.S.Ogura@hawaii.gov. As this program continues to develop and grow to support the watershed partnerships, we look forward to sharing these efforts and successes in future newsletters.

Erythrina Gall Wasp Update

Robert Hauff, Forest Health Coordinator
DOFAW

One year after the erythrina gall wasp began infesting wiliwili and coral trees throughout the state, scientists and managers are making advances in battling this destructive pest. Research on systemic insecticides has found that imidacloprid treatments combined with irrigation and fertilizer can provide trees with healthy foliage. Minimal effective dosage and treatment schedules are still being researched, but chemical treatment appears to be a feasible strategy for protecting trees in some situations. Options for native wiliwili trees growing in the forest are more limited because of their remoteness, and experimental trials have been established to determine whether injecting chemicals into trees can provide protection against the damaging insects. Results from these trials are still pending.

Hawaii Department of Agriculture and the University of Hawaii are working together on finding biological control for the gall wasps, the only long-term solution for this pest. They have located several potential candidates from different areas in Africa where the gall wasp is believed to have originated. Tests are underway to determine whether these organisms could have any adverse effects if released in Hawaii. It will still be several years before any of the candidates are ready for safe release.

The gall wasps have reached most areas of the state, although some remote wiliwili populations might still remain uninfested. Despite its rapid dispersal, effects on native populations are variable with some populations appearing healthy after the heavy rains earlier this year. So far, widespread mortality of wiliwili has not occurred. The infestation might abate as concentrations of non-native trees become defoliated and no longer serve as a source of insects for infesting native wiliwili. It remains to be seen whether the native trees will successfully develop seeds this year.

Forest Stewardship Program Handbook Changes

The State Forest Stewardship Program is actively revising its Handbook. These changes are aimed at making the application process simpler, improving and increasing the land management practices, increase benefits to landowners, and update the hold down cost share rates. The final approved handbook will be put on the Forest Stewardship Program website at http://www.state.hi.us/dlnr/dofaw/hfsp/index.html

Volunteers Planting Native Plants at Kapena Falls

Debbie Ward, Public Information Officer, DLNR and Jackie Ralya, Kulunani Urban Forestry Technical Coordinator, DOFAW

On June 29, 2006, from 1 to 4 pm, volunteers from the Friends of Kapena Falls, the Aiea and Kapolei Outdoor Circle, production managers of the well known WB television show "Lost", along with twenty servicemen and women from the visiting U.S.S. Denver, which is participating in RIMPAC exercises, came out and assisted the Department of Land and Natural Resources in planting 425 endemic and Polynesian introduced plants at Kapena Falls.

"We appreciate the cooperative effort of the Friends of Kapena Falls, Outdoor Circle, the Navy, DLNR personnel and the "Lost" production who are coming together to plant native plants to make Kapena Falls a more beautiful area," said Peter Young, DLNR chairperson, a day before the planting took place.

"This project came together in less than 24 hours, thanks to the efforts of our Kaulunani Urban Forestry program technical coordinator. We appreciate the contribution of all the participants to beautify this popular natural area," Young said.

DLNR's Division of State Parks provided a flatbed truck and truck driver who picked up the 425 plants from the Koba Nursery and transported them to Kapena Falls. Trees of Hawaii provided the tools that were used to plant the plants as well as their expertise and refreshments.

The plants were provided as a gift from the "Lost" television show that was recently filmed at Kapena Falls, one of the largest pools of Nu'uanu stream. Within an hour and a half, the volunteers completed planting all the endemic and Polynesian introduced plants leaving them with some time to enjoy a swim in the falls.

Volunteers of the Kapena Falls beautification. Photo by Jackie Ralya.

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said Peter Young, DLNR chairperson. Kawashima was nominated for the RTP national achievement award by the American Motorcyclist Association on behalf of Na Ala Hele.

"The Waiakea off road riding area represents a collaboration between DLNR and local enthusiasts to identify and develop an area that is environmentally and socially appropriate for off road use."

"DLNR is working to identify suitable public and private land for authorized off road use. We want to provide these recreational opportunities, and at the same time protect areas from negative impacts," Young said.

"DLNR is working with Oʻahu and Maui enthusiasts to develop off road riding areas away from forested watersheds, through collaborative partnerships for design and management -- and utilizing federal funds available to DLNR through our trails program."

The Upper Waiakea ATV/Dirt Bike Park is the first of its kind in Hawaii – an off-highway vehicle (OHV) riding area in a Hawaii state forest reserve. Unlike mainland forests, Hawaii forest reserves are managed primarily for their watershed value, with multi-use recreation limited to single track trail and four-wheel drive access roads.

Hawaii forests tend to have pervasive and year round growth of lush tropical vegetation on frequently occurring steep slopes and shallow tropical soils. These environmental conditions require that careful evaluation must occur prior to developing an area for OHV use.

As the state's Na Ala Hele Big Island Trails and Access Specialist, Kawashima has worked with a local cadre of off road enthusiasts to create a durable and creative riding area in a planted forest that will be subject to harvest at some point in the future.

Using the existing grid line/access routes created when the trees were planted, Kawashima and the riders mapped out and then cleared the grid lines to establish the trail. The trail is an irregular loop for ATV's and off-road motorcycles.

The Waiakea trail provides 22 miles of authorized off road use on public land where none existed before. Kawashima and the OHV users also coordinated with the local pig hunters who use the area to minimize conflict between the two user groups.

Future plans include the establishment of a camping area and comfort stations, and coordinating with the private company that will conduct the timber harvest via the grid line access routes.

More Information on the Policy and Management of OHV's will be published in the Winter issue of the "Na Leo O Ka Aina" December 06'.

Hawaii Landowner Incentive Program

Bill Standley,
Conservation Initiatives Coordinator, DOFAW

Over 50% of the total land area in Hawaii is under private ownership. Much of this land is controlled by a few large landowners; seven private landowners control approximately 20% of the land in the State. The cooperation and assistance of private landowners is essential to be able to conserve and restore native flora and fauna. Recognizing the need to engage private landowners in the conservation of rare and endangered species, Hawaii has established its own landowner assistance programs for forest stewardship and natural areas management. The Division of Forestry and Wildlife (DOFAW) also provides technical assistance and actively pursues federal funding programs to assist private landowners to manage natural resources on their lands. One of the major components of DOFAW's landowner assistance program is the Landowner Incentive Program (LIP) that was initiated by the US Fish and Wildlife Service (FWS) in 2002. The goal of the program is to provide funding and technical assistance to enhance, protect, or restore habitats that benefit federally listed, proposed, or candidate species, or other at-risk species on private lands. During the first three years of the program, the State received 74 requests for over $8,600,000 in funding and was successful in securing nearly three million dollars in LIP funding to support over 30 projects. Funding has been used to support projects within each of the watershed partnership areas, including fencing, ungulate and invasive species control, and propagation and outplanting of listed plants. This year the State received 20 requests for over $2,700,000 and we are waiting for an announcement of awards.

DOFAW informs private landowners throughout the State regarding LIP via a variety of means – direct contact from staff biologists, email distribution to lists maintained both internally and provided by other agencies such as the FWS Conservation Partnerships Program, the Natural Resource Conservation Service (NRCS), and the Hawaii Association of Watershed Partnerships, a LIP web site (www.state.hi.us/dlnr/dofaw/LIP/index.html), and press releases and workshops. DOFAW and FWS staff from the Honolulu field office evaluate and rank proposals received using criteria based on FWS ranking criteria. Projects that receive the highest ranks are those that: 1) allocate at least 90% of project costs to on-the-ground enhancement, protection and/or restoration; 2) provide complete details as to how the funds awarded will be spent; 3) benefit the most at-risk species (defined as species Federally listed as endangered or threatened, proposed or candidate species, or those on the State's list of species of concern, or on the Plant Extinction Prevention (PEP) list (formerly known as the Genetic Safety Net (GSN) list)); 4) provide the highest contribution

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to the species needs (as described in the Hawaii Comprehensive Wildlife Conservation Strategy (CWCS), FWS recovery plans, or PEP priorities); 5) benefit habitats and/or species that currently receive little or no protection regionally or locally; 6) have a high probability of achieving the expected results with the level of assistance available; 7) include objective criteria for success that is verifiable by the State; and 8) provide the highest amount of cost-share (minimum required is 25%.)

While the funds for the next year of the program have not yet been appropriated, FWS expects to announce the next call for proposals in September, 2006, so landowners and their cooperators are encouraged to start developing their proposals now. For more information, go to the LIP web site or contact Bill Standley at 808-587-4171 or william.g.standley@hawaii.gov.

Update on the Forest Legacy Wao Kele o Puna Acquisition

Sheri Mann, Service Forester, DOFAW

Last year the Forest Legacy Program granted $3.385 million to DLNR for the purchase of Wao Kele o Puna, 26,000 acres (total price is $3.65 million) in lower Puna on the Big Island currently owned by the James Campbell Estate. Subsequently, it was decided that the Office of Hawaiian Affairs (OHA) would be the lead agency for this acquisition and be responsible for the majority of acquisition duties, future management, and protection of the property.

Working as a partner to help complete this acquisition, the Trust for Public Lands (TPL) provided the full $3.65 million that is now in escrow with the James Campbell Estate. Escrow may close in as soon as two weeks or as long as December 15, 2006 depending on the Campbell Estate. OHA will provide $292,000 in addition to the Forest Legacy funds, which will collectively be reimbursed to TPL, at which time OHA will take the title.

DLNR is working with OHA to establish the first non-DLNR Forest Reserve. Over the next ten years DLNR and OHA will work together (via a Memorandum of Agreement) to share knowledge about land management and protection, as well as Hawaiian cultural development and understanding. This will require financial and human resource commitments by both agencies.

DLNR is also working with the State Legislature to raise funds to fill the 7,000 ft geothermal well located in the middle of Wao Kele o Puna. Additionally, the State is working to remove the Geothermal Subzone designation on this land and possibly in many surrounding communities.

Hunting Recreation Days in Hawaii

Ed Johnson, State Hunting Coordinator, DOFAW
Paula Capece, Intern, UH Deparrment of Botany

For decades, the Division of Forestry and Wildlife has generated annual statistics on hunter recreation and game harvest, based on hunter check station data. Although all hunters are technically required by the rules regulating hunting to check in and out and reply to division questionnaires received by mail (§13-123-22(3)), these rules are not strictly enforced. It is well known that hunters systematically underreport at certain check stations and for particular game animals. There are a number of reasons for this; one is that the records are on view, and listing hunting success can alert other hunters that there is game in the area. In any case, estimated annual hunter recreation has varied between 25,000 to 40,000 days annually over the last 10 years based on check station reporting.

At the other extreme of available estimates of hunter recreation levels in Hawaii are the five year interim reports of the U.S. Fish and Wildlife Service in the "National Survey of Fishing, Hunting, and Wildlife-Associated Recreation." Over the last 10 years, this report, based on a telephone survey sample of Hawaii residents conducted in cooperation with the Bureau of the Census, has estimated total hunter recreation days between 258,000 and 371,000 annually. These numbers are greater than the state's estimates by 9- to 10-fold. The standard disclaimer has been to suggest that the numbers from the federal survey must include both private and public hunting, and are therefore greater than the state's estimate of public hunting numbers only.

In 2001, Division wildlife biologists included in the Five Year Game Management Program Plan a section specifically devoted to the "Development of Techniques to Measure Hunter Effort and Success," to begin in 2003. In 2003, the second ever Hawaii hunter information survey was mailed out to a random sample of over 5,000 licensed hunters around the state, and hunters were queried about hunting on both public and private lands.

From the respondents of the state survey (n≈1,300), total hunter days on both public and private lands for the 2003 fiscal year were estimated at 178,469. The USFWS estimate for the same period (essentially a 5-year average) was 371,000 days. However, total hunters for the federal survey were estimated at 17,000 statewide, but we know from license sales that only 8,080 hunters were licensed to hunt in that year. (There are about 40,000 persons statewide who have hunter education cards, but only 8 to 10 thousand are normally licensed in any one year, and of course some who are self-identified as hunters would not have purchased licenses.)

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To better compare the federal estimates of hunting days with the state estimates, the ratio of actually licensed hunters to the federal estimate of hunters can be calculated at 47.5%. To standardize the federal estimates, we multiplied 371,000 hunting days times .475 to yield an adjusted federal estimate of 176,225 hunting days for licensed hunters. This is very close to the state survey estimate of 178,469 total hunting days by licensed hunters. The check station data for the same period showed a total of 34,293 hunter days, but this is only for public hunting areas. The comparable number from the state survey was 99,495 hunter days on public land (just about 3 times greater than the check station numbers). In the next installment, some results and implications for game harvest estimates will be presented.

2002-03 Check Station hunting reported:

Total Hunter Trips (Public with check stations):

24,399 (Mammals) + 9,894 (Birds) = 34,293

----------Total Licensed Hunters 8,080
Total Hunters: 17,000

2001 National Survey of Fishing, Hunting, and Wildlife Recreation:

Total Days Hunting for State Residents in Hawaii:
285,000 (Big Game) + 86,000 (Small Game) = 371,000

02-03 State of Hawaii Hunter Information Survey:

Total Hunter Trips (Public + Private):
130,226 (Mammal) + 48, 243 (Bird) = 178,469

Total Hunter Trips for Public Land only
70,305 (Mammal) + 29,190 (Bird) = 99,495 Total Licensed Hunters: 8,080

Landowner Assistance Program "One Stop Shop"

The Division of Forestry and Wildlife is working with partner agencies in the state that provide land owner assistance programs, to create a "One Stop Shop" website that private landowners can use to explore and identify the program that best meets their needs. There are many programs that private landowners can use and each program has different incentives, benefits, constraints and/or permits associated with them. We hope to make this website easy to use, allow users to quickly link to websites for more detailed information and contact information, and provide example permits so users clearly understand what they need to in order to successfully utilize these programs. Ideally, this website will be launched within six months.

Ua'u-Kani Studies On Maui Nui

Fern P. Duvall II, Wildlife Biologist, DOFAW

The three main islands of Maui Nui with its 22 off-shore islets still truly provide a large and complex array of nesting possibilities for our native seabirds. Sixteen species are seen regularly on Maui Nui and of those it is still unclear, other than the very numerous species, which can be considered regular nesting species on Maui Nui. It is difficult to assess presence of birds which only arrive to the nesting areas after dark, and usually on difficult to access, remote, and steep areas of the coasts and islets. Some seabirds are both exceedingly rare and poorly understood, such as the Band-Rumped Storm-Petrel (Oceanodroma castro), while other species nest here in the thousands. This update concerns mainly ongoing work being done with the still very common, but increasingly beleaguered, Wedge-tailed Shearwater or ʻuau-kani (Puffinus pacificus) which nest on Maui Nui.

Wedge-tailed Shearwater or 'Ua'u Kani, Puffinus pacificus. Photo by Mark and Shayla Middleton

Since 1998 Maui DOFAW wildlife staff has used Pittman-Robertson Seabird Survey and Inventory monies annually to document and better understand the biology of Maui Nui seabirds, in the effort to guarantee and enhance their continued survival. The primary goal of this complex task comprises three main efforts: to determine seabird nesting sites on Maui Nui, then to obtain information on the numbers of birds and their life biology, and to determine the presence and scope of predator and human disturbance impacting the seabirds. Additionally, in the last six years multi-disciplinary study of the numerous Maui Nui off-shore islets has begun in earnest, in cooperation with the consortium of agencies and persons making up the Offshore Islands Restoration Committee

Two dead petrels. Photo by Fern Duvall II

Surveys and management for nesting ʻua'u-kani has primarily involved studies in eight locations on the island of Maui, plus Molokini, two sites on Molokai and only one site on Lanai. Repeated visits to nesting locations on Maui Nui documents the April to mid- November nest burrow occupancy, life biology information such as egg-laying, and hatching dates, and unfortunately the regular insidious losses of the nesting birds and their chicks to introduced predators (cats, rats, dogs) or human trampling.

At the end of the nesting season, in the days just before the fully grown ʻua'u-kani chicks leave their burrows for their virgin flights, we return to the successful burrows, remove the unfledged chicks, place federal bands on the birds' legs, and return them safely to their nest burrows. Banding of hundreds of seabirds in only a couple of weeks requires lots of help. The annual banding marathon has consistently been a real successful cooperative venture - staff from Haleakala National Park, U.S. Geological Survey, Kealia National Wildlife Refuge, Maui Land and Pine, Maui Invasive Species Committee, The Nature Conservancy of Molokai, Americorps Interns, and DOFAW Volunteers have all joined in assisting DOFAW wildlife staff to get the work done. Importantly, colleagues of Maui DOCARE have generously arranged schedules and transported us in their boats to the Molokini Islet when we go banding, each year exactly when we need them. Banding provides lots of training to some, and hands-on experience for all involved. The days of banding ʻua'u-kani - while very gratifying for participants - is an intense activity with long hours of hot sun, steep slopes, biting ants, and flies and the struggling birds which often scratch, vomit, bite and defecate to show their displeasure with the handling. To date just under 3000 ʻua'u-kani juveniles have been pulled from nest burrows and banded on Maui Nui.

Placing federal bands on a 'ua'u kani chick's leg. Photo by Fern Duvall II.

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('Ua'u Kani Studies on Maui continued)

In addition to banding unfledged ʻua'u-kani from nest burrows, the banding of any "grounded" seabirds (e.g. any juvenile seabirds so disoriented by lights that they end up on the ground, therefore called "grounded") is also a regular annual activity on Maui that busies DOFAW wildlife staff for weeks. Wildlife staff responds, starting in mid-October with retrieving, examining and banding of any grounded Hawaiian Petrels (Pterodroma sandwichensis) and Newell's Shearwaters (Puffinus newelli). Mid-November to mid-December, however is the peak period for fallout of ʻua'u-kani. Numbers of grounded ʻua'u-kani banded to date totals more than 250.

DOFAW staff members banding an 'ua'u kani. Photo by Fern Duvall II

'Ua'u kani in nest burrow. Photo by Fern Duvall II

Banding of birds will ultimately let us understand the demography and life history of Maui Nui ʻua'u-kani. You need to have birds to band them - much work for DOFAW is necessary still. Important management that will protect and allow them to flourish must focus on removing feral cats, and rats, increasing nighttime lighting of the islands, and the trampling and loss of coastal nesting areas to development and other activities of humans and their household pets.

Also see the article on the new studies of Hawaiian Petrels just recently 're-discovered' on the Island of Lana'i on Lana'ihale on page 13.

Controlling Banana Poka on Maui

Robert Hauff, Forest Health Coordinator
DOFAW

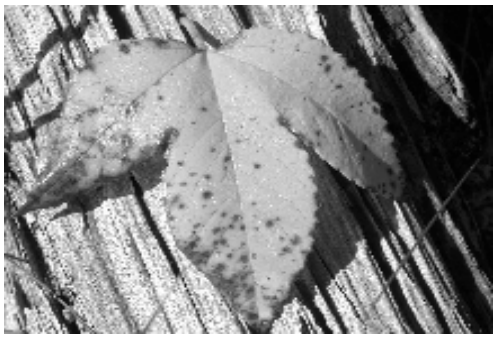
Banana poka *(Passiflora mollissima)* is an invasive vine closely related to lilikoi and introduced to Hawaii from South America for its fruit and large pink flowers. The vine grows at higher elevations and kills forest trees and native vegetation by smothering them. Its seeds are spread by forest birds and pigs which eat its abundant orange fruit. Because the plant's range covers a large area, eradication with herbicides is not possible.

The invasive vine is widespread on the islands of Hawaii and Kauai where it has been successfully controlled in with the introduction of a fungal biological control agent Septoria passiflorae. State and federal government agencies approved the release of this pathogen in 1996 after scientists confirmed it was not likely to affect local agriculture or native organisms. The spores of the Septoria fungus are spread by wind and germinate when they land on a moist banana poka leaf. The fungus causes leaf spots which eventually kills the leaf and defoliate the poka vine.

Banana poka is also present in the Kula Forest Reserve on Maui. The original introduction of the Septoria fungus did not effectively control the population in Kula, perhaps due to drought conditions present during the 1990's. With funding from the USDA Forest Service, DOFAW foresters and Hawaii Department of Agriculture's Plant Pest Control

(Continued from left)

staff made two new applications of fungal inoculum to banana poka populations in Kula in March 2006. Managers hope that wetter conditions this year will allow the disease to infest the banana poka and prevent its spread to windward Haleakala where the vine would smother native forests. Monitoring of the release sites will determine whether the pathogen established successfully and is controlling the banana poka population.



Banana poka leaf with leaf spots caused by Septoria passiflorae. Photo by Robert Hauff.

Coqui In Hot Water

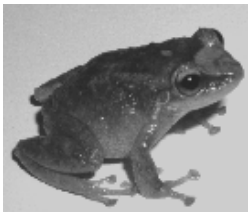
Mark Defley, Plan Implementation Manager
Hawaii Invasive Species Council, DOFAW

What does a coqui frog do in a hot shower? That's one of the questions asked by Bill Durston, owner of Leilani Nursery in Waimanalo, and a team including Domingo Cravalho of the Hawaii Department of Agriculture and three University of Hawaii scientists--Dr. Arnold Hara, Charles Nelson, Paul Singleton. They have been perfecting the design of a hot water treatment system to kill coqui frogs in nursery stock—the main source of their spread throughout Hawaii.

Plagued by this noisy invader, this important Hawaii industry is facing increasing customer demand for coqui-free plants. Leilani Nursery was awarded funding for the project last year from the Research and Technology Program of the Hawaii Invasive Species Council, which includes DLNR. This created a public-private partnership to address one of our most problematic invasive species.

On a sunny day this spring, a group of Guam conservation professionals visited the nursery for a demonstration of the system's effectiveness. Like Hawaii, Guam is vulnerable to invasion from coqui frogs hiding in imported plants. Bill explained to the group how water is pumped from a reservoir, through a row of heaters, and through sprayers mounted inside an insulated, twenty-foot shipping container. The hot water then drains back into the reservoir, to be recycled back through the system, conserving both water and energy.

Another partner in the project—DOFAW's Scott Williamson--rolled a mesh cage filled with plants and five coqui frogs into the container and closed the doors. The group chatted while watching the numbers on the temperature gauge slowly rise to 115 degrees. After 5 minutes at that temperature, Bill turned off the pump. The doors were opened and the cage was rolled out. The group gathered around as Bill opened the cage. Scott looked inside for the five coqui. The answer to Bill's question lay on the floor of the cage. All five coqui seemed to have tried to escape the hot water by jumping, rather than seeking refuge in the plants or soil.



Eleutherodactylus coqui is a light brown to dark colored frog measuring up to 2 inches with variable patterns. The coqui's high pitched two note bird-like chirps have been measured at 80 - 100 decibels, equivalent to noise produced by a lawn mower. Photo by DOFAW

(Continued from left)

The Guam visitors were delighted by this convincing demonstration. The system also shows promise for the treatment of soil nematodes and other plant pests. Other nurseries have already expressed interest in having one of their own.

Bill has incorporated the treatment of his plants into Leilani Nursery's operations, including an entire green house for coqui-free plants. Palms in particular look even healthier after their shower.

Some other species, such as orchids, are more sensitive. So the team will continue to fine-tune water temperatures and shower durations for different species of plants.

As this promising new tool is adopted by the industry, it will bring us closer to both long-term prevention of coqui, and long-term protection of our quiet nights in Hawaii.

Durston (on right) explains how the system works. Photo by Mindy Wilkinson.

(Continued from page 1)

Alliance, the Dryland Forest Working Group, and the Big Island Invasive Species Committee (BIISC). Achievements of Dave Smith include the ongoing work at Kawainui Marsh and the protection of rare species at Kure Atoll.

Other employees of the Division of Forestry and Wildlife (DOFAW) were also recognized for their outstanding performances as the Department of Land and Natural Resources (DLNR) employee and team of the year nominees, Sheri Mann a Forester with the DOFAW administrative office, Mindy Wilkinson an Invasive Species Coordinator also with the DOFAW administrative office, and the Comprehensive Wildlife Conservation Strategy team Scott Fretz, Jeff Walters with the Department of Aquatic Resources (DAR), Christine Ogura, Christen Mitchell, and Dave Leonard.

Preliminary Report on Hawaii Hunter Information Survey 2003: Qualitative Section

Ed Johnson, State Hunting Coordinator, DOFAW and Paula Capece, Intern, UH Deparrment of Botany

For the past few years, Division of Forestry and Wildlife has been conducting an annual survey of randomly selected registered hunters across the state. The main purpose of the survey is to assist in improving estimates of hunter recreation and game harvest levels in Hawaii, and well as to improve game management on public lands. Hunters are asked to report their hunting activities including: the number of days spent hunting, number of each animal bagged as well as the different islands where the hunting took place.

In addition, hunters were asked two open-ended questions: "What are your main comments on or criticisms of public hunting in Hawaii?" and "Any suggestions on how to improve hunting in Hawaii? It was hoped that an unrestricted and unconstrained opportunity to express views would provide information about the concerns and needs of hunters, on their own terms.

This approach is in sharp contrast to survey questions which force respondents to choose answers from lists they might not ever propose. Also, these questions provide an alternative to the classic loaded question approach.* The data from open-ended questions is not as easy to manage or summarize as that from multiple choice or fixed category questions, but is often more meaningful, especially in exploratory efforts.

Somewhat surprisingly, the comments, criticisms, and suggestions tended toward considerable overlap, so were counted together. It should also be noted that for most areas of concern or criticism, there were also favorable comments, even though these were not solicited. For example, around 7% of those who expressed an opinion pointed out concerns over costs of hunting or increases in fees or poor allocation of funds, but just over 1% suggested increasing the fees as a way to improve hunting.

In the 2002-03 Hunter Information Survey the open ended comment section yielded these top categories in the following order:

Top Qualitative Responses for Hawaii Hunter

Comments/Criticisms/Suggestions for Improvement	Percent of total sample (n=1,298)	Percent of those offering at least one comment (n=920)
More lands needed for hunting or too much loss of hunting areas	16.8%	23.7%
Lack of game	13.9%	19.6%
Need for better enforcement on poaching and safety issues	8.2%	11.6%
Cost of hunting too high or poor allocation of funds or improvements don't match fee increases	4.9%	6.8%
Need for better access to public hunting areas	4.5%	6.3%
Poor or inadequate or lack of game mgmt. or need for better mgmt.	4.4%	6.2%
Unhappy with mammal eradication in general	4.2%	5.9%
More watering units needed or better maintenance of ones there	3.0%	4.2%
Opposed to eradication of sheep on Mauna Kea specifically (and only site mentioned)	2.6%	3.7%

(Continued on page 12)

(Hunter information survey continued)

Better access/more opportunity needed to hunt axis deer on Maui	1.7%	2.4%
More/better predator control (feral dogs & cats, & mongooses)	1.3%	1.8%
Open Lanai axis/mouflon hunts to 2-day weekends instead of 1	1%	1.4%
Better information needed on hunting areas and schedules	1%	1.4%
Need for more campgrounds near major hunting areas	<1%	<1%
Hunt access roads in poor condition and/or need better maintenance	2.1%	2.9%
Need for cooperation with private landowners to open more hunting	<1%	<1%
Information Survey 2003		

The above table represents the top 16 qualitative open-ended answers to the 2003 Hunter Information Survey. The categories are summary topics constructed from the variously self-expressed concerns of respondents. These data are represented as a percentage of the total 1,298 hunter forms returned (c□

In addition to these open-ended questions, the survey typically contains questions soliciting hunters' opinions on major issues identified by the hunting community during the previous hunting season. The 2003-04 Hunter Information Survey included questions on the following topics:

1) A reduced price one-day license for non-residents: (42% supported; 44% opposed)

2) Limiting the number of dogs allowed per hunter/group of hunters:
(49% supported; 42% opposed)

3) The addition of one more weekday to the 2005 game bird season schedule
(64% supported; 18% opposed)

Finally, we list below some favorable comments from respondents to the 2003 Hunter Information Survey; things you won't see in the newspaper. And for Division staff, you'll be unlikely to hear anything like this in incoming telephone calls.

Respondent
#309: "Great job by DLNR. No complaints."
#742: "I love going hunting, keep up the good work."
745: "Hawaii has excellent hunting for big game and small."
#764: "Hunting is excellent!"
#845: "Keep up the hunters education classes."
#1196: "[I've seen] improvement since tag fee implementation."
#19: "Best turkey hunting in the world."
#98: "Hawaii is one of the best [places to hunt]; able to hunt 365 days a year."
#113: "I think hunting is managed pretty well."
#154: "You're doing a great job. No criticism."
#168: "You're doing a good job."
#486: "Good job."
#156: "It was a good experience. There were lots of animals to go around."
#162: "Love it; quality time with son, friends, dog."
#209: "This is one of the best places in the world to live if you're a hunter."
#293: "It's good and fun."
#296: "Good and diverse."
#310 & 353: "[Specific staff members named] are doing a good job."
#745: "Ok."
Respondent #278 said "Seems like no one has been listening to past comments and suggestions, so why take time out to do surveys?," while #106 wrote "Keep these surveys going and act on the results."
Respondent #856 wrote "Stop the 'stink eye' between conservation and hunting; promote the bond, the common ground."

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DOFAW Initiates Study of Hawaiian Petrel on Lanaʻi

Jay Penniman, Maui District Endangered Species Research Specialist, Maui DOFAW

ʻUaʻu or the Hawaiian petrel (Pterodroma sandwichensis) is a ground-nesting seabird, which was once abundant on the main Hawaiian Islands. ʻUaʻu come to shore only during the breeding season, leaving the sea shortly after sunset. They fly above colony areas performing aerial gymnastics while making a series of calls, moans, chatters and squeaks. Since human contact, ʻuaʻu numbers have declined dramatically. Early Hawaiians enjoyed eating chicks pulled from burrows with specially designed poles. The introduction of mammalian predators, including rats, dogs, cats, and mongoose, severely impacted ʻuaʻu populations, while land development and invasive species reduced available nesting habitat. Now, ʻuaʻu is a Federally-listed endangered species.

The majority of known breeding birds nest high on the slopes of Haleakalā. Smaller breeding populations are located on Hawaiʻi and Kauaʻi, with breeding suspected on Molokaʻi and Lanaʻi. As part of Hawaii's Comprehensive Wildlife Conservation Strategy, DOFAW has initiated a study on Lanaʻi to determine population size, locate active burrows, and control predators. Results will be used to develop management strategies to protect ʻuaʻu and enhance recovery of the species.

Surveys began in March, 2006. First survey locations were based on historical reports and have developed to include a 6 km section of the Munro Trail. Transect lines and observation stations were established to conduct nighttime surveys, using night-vision goggles and listening to the cacophony of calls in the air. Initial results indicate that an ʻuaʻu colony is present on Lanaʻi's summit, in an area of steep slopes with dense uluhe (Dicranopteris linearis) and scattered ohia (Metrosideros polymorpha). DLNR biologists were surprised by the large number of birds detected, but reliable estimates are not yet possible. Removal of goats from Lanaʻihale in the 1980s and the absence of mongoose may have helped protect ʻuaʻu on Lanaʻi. One early-evening shoreline survey for rafting birds provided a chicken-skin moment. Eight birds were seen between the reef break and the shore before dark. They performed similar aerial maneuvers to those observed on the mountain. One by one, they faced into the wind, rising higher and higher, before turning toward land and disappearing mauka.

This project is a cooperative effort involving DLNR/DOFAW, U.S. Fish and Wildlife Service, and the Lanaʻi Company.

Little school, BIG achievements.

Jackie Ralya, Kaulunani Urban Forestry Technical Coordinator, DOFAW

Earlier this year Susie Osborne stood up at the First Nations Conference in Hilo and said that she was thinking of growing trees to give away and was looking for ways to fund the project. Jackie Ralya, the Kaulunani Urban Forest Technical Coordinator for the Division of Forestry and Wildlife, who attended the conference, had to jump up and tell the group about the Kaulunani grant and how it helps volunteers who plant trees. The two got together to talk more about the Kaulunani grant and the rest is history.

Susie Osborne is the founder and director of Ho'oulu Lahui – Kua O Ka La Public Charter School. This school is located on the grounds of the ancient Hawaiian fishing village of Pu'ala'a. Public charter schools have a budget of $5000 per student with no money for infrastructure and this is a story of how a small public charter school achieved great awards and recognition with the help of Kaulunani grants.

Osborne received her first Kaulunani grant for her charter school in 2002 to grow 250 one-gallon trees to give away on Earth Day. Students grew the plants under the shade of the trees and gave them away to the University of Hawaii, Hilo. By the third grant, the school had two give away sites, a nursery which the students built and were propagating and giving away 500 plants on Arbor Day. Along with the tree give away, the students researched and prepared demonstration projects appropriate to the type of products produced by the trees, wrote information flyers about each tree, and provided note cards with drawings of the trees made by the students to be given as gifts.

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*Some examples can be found in the otherwise informative previous survey of hunters done for fiscal year 1985-86.[1] The question was posed, "Would you pay a higher license fee if it improved your hunting experience?, and surprise, 78% agreed. (It is unclear what a "no" answer to this question would mean, other than disbelief in the validity or sincerity of the question.) There were others: "Should the state promote educational programs that disseminate knowledge of wildlife? (83% agreed). We will revisit this study and some of its rather surprising results in a future installment.

[1]Hawaii Hunter Survey, 1985-1986. 1989. Tod Lum and Tim J. Ohashi. DLNR-DOFAW and The Wildlife Society-Hawaii Chapter.

Lana'ihale 'Ua'u Update, 27 June 2006

Jay F. Penniman, Maui District Endangered Species Research Specialist, Maui DOFAW

Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife (DLNR/DOFAW) in cooperation with the Lana'i Company continue working to assess, and protect endangered Hawaiian Petrel (Pterodroma sandwichensis, ʻua'u) on the island of Lana'i. Biologists have made eight visits, (28 nights), to Lana'i since March of this year. Agencies and organizations that have participated to date are:

Hawaii DLNR/DOFAW
Island Conservation
Kaheawa Wind Power
Lana'i Company
Research Corportation University of Hawaii
US Fish and Wildlife Service
Us Geological Survey
Other participants also including those private individuals who have volunteered their time and effort.

ʻUa'u have been documented along six kilometers of the Munro Trail. Birds were heard calling from the ground only in March. Every night birds were observed calling and flying above the ridges and gulches of Lana'ihale. First birds arriving in the evening are visible with the naked eye with the last of daylight. Visual observations after dark have been made with night-vision goggles and an infrared (thermal) imager. Persistent cloud cover and winds exacerbate the difficulty of quantifying birds in the air. ʻUa'u calls on Lana'ihale are similar to those described by Simons (BNA.345). As night progresses calling diminishes; thermal imagery reveals that silent birds continue to be present, often high overhead. Observations at three different locations have been estimated to be between dozens and hundreds of birds in the air. Newell's shearwater (Puffinus auricularis newelli, ʻA'o) have been heard on four occasions.

Colony areas are assumed to be under areas where birds are flying at night. These areas are covered with uluhe fern (Dicranopteris linearis) with remnants of native dryland forest community, especially ʻohi'a (Metrosideros polymorpha), present.

Photos by Jay Penniman

(Continued from left)

Strawberry guava (Psidium cattleianum, waiawi), severely compromises habitat areas. Burrows have been searched for along the watershed protection fence which comes off Hii Flat first bench up to Pu'u A'alii. To date six potential burrows have been identified. When burrows are located monitoring sticks are placed across the entrance and checked for disturbance. Moved sticks in association with fresh seabird excrement and or track are taken as indicating an active breeding site. Two of these have been identified. As chicks hatch and adults begin nightly provisioning visits we assume an increase in petrel smell and visible excrement will lead to additional active burrows being identified.

Photo by Jay Penniman

Photo by Jay Penniman

These pictured burrows are along the fence line. Most of the area where burrows exist is covered with dense uluhe under which the ʻua'u travel and burrow. Walking through these areas would introduce paths for feral cats to travel. Therefore we limit our searching to areas where we can minimize any additional intrusion into colony areas. Our cat traps are located in areas leading up to the pictured burrows in the hopes of intercepting predators as they travel.

Photo by Jay Penniman

Birds have been heard colliding with the watershed protection fence. Work continues to add high visibility material to the fence. One ʻua'u has been found low in the uluhe along the fence.

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By 2004, the process of growing trees was incorporated into the school curriculum and a Forestry Specialist teacher was hired. Their classes were project driven,the arboriculture and horticultural practices that students learned were directly related to the trees that they grew. This project gave students exposure to technical writing, applied mathematics and environmental sciences.

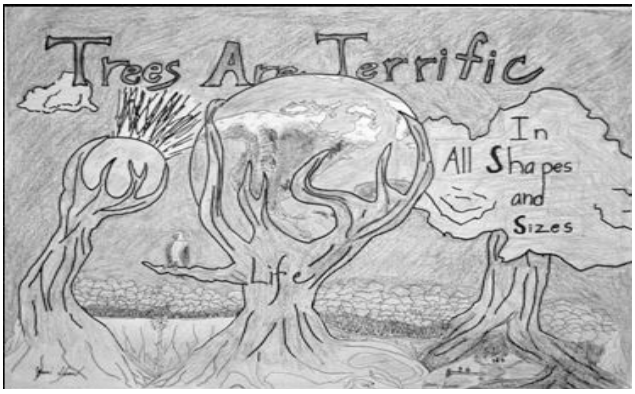
As a result of the Arbor Day tree give away projects funded by Kaulunani, the school received the International Society of Arboriculture coveted Arbor Day Gold Leaf Award. Against the odds, these 54 at risk students in Puna made it over the top with true determination gathering recognition and awards along the way. It all started with one Kaulunani grant, a great vision, and dedicated educators and students.

The school also received the Environmental Protection Agency Regional award and first place in the high school design competition at the World Photovoltaics Conference earlier this year for the composting toilet that they have built.

2006 Hawaii National Arbor Day Poster Contest Winner

Tekawitha Iese, Education and Information Assistant, DOFAW

Jason Sasan, a fifth grade student of Mililani Mauka elementary, is Hawaii's 2006 National Arbor Day Poster Contest Winner. His poster was chosen of the 96 posters that were drawn. The judges were Jackie Ralya (Kaulunani Urban Forestry Technical Coordinator, DOFAW), Jolie Wanger (Education and Information Specialist, DOFAW), Richard Ralya (Web Designer and Artistic Director of gallery "39 Hotel"), Michelle Gorham and Tekawitha Iese (Education and Information Assistants, DOFAW).



Jason Sasan's winning poster

This year's theme was "Trees are terrific in all shapes and sizes". When asked about his idea for the poster, Jason said, "You can't explain how you think up stuff. I wanted to show that the world is like a tree that needs to be nurtured and taken care of. It's kinda hard not to think of trees where we live. At the Mililani Town Center, they should have had

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Photos by Jay Penniman

This bird flew two meters off the hand to "perch" on uluhe. The next day there were no signs that the bird was predated and it left only excrement on the uluhe.

Track traps have been established to document the presence and movement of feral cats. Intestinal contents of a recently trapped cat included petrel feathers. Nine cats have been trapped and removed. Barn owls (Tyto alba) are present every night during observation times. We have no evidence in hand of owl predation on 'ua'u but we must assume that it occurs. There are no mongoose on Lana'i.

We look forward to cooperating with USGS, USFWS and HG Harvey and Associates in August to use satellite telemetry to learn where evening rafts of 'ua'u off Lana'i are located. Perhaps this will lead us to a clearer idea of the numbers of birds present.

Thanks to all who have participated in this project. Anyone interested in coming out to participate and witness one of the most septentrional Pterodroma can contact me at jfp@igc.org or jay.f.penniman@hawaii.gov.

The "Hawaii Backyard Conservation, Ideas for Every Homeowner" booklet is now available at any Division of Forestry and Wildlife Branch while supplies last. For more information about this booklet please call (808) 587-0166 or email Jolie.R.Wanger@hawaii.gov

(Continued from page 15)

more sense than to cut down trees just to put a bench on. What's going to happen to the Oxygen? I am very satisfied with my drawing and I would not change a thing. I hope that others who see my poster will learn that if we take care of the world, the world will take care of us. We would probably live a year or so without trees then we will die out. If we lose the trees, we lose the animals that we eat. Then natural balance is lost."

Jason Sasan (second to the right) and Ramil Gonzales (first on the left), with councilman Donovan Dela Cruz and Kaulunani Technical Coordinator Jackie Ralya. Photo by Jackie Ralya

Councilman Donovan Dela Cruz awarded Jason Sasan and Ramil Lorenzo Gonzales, the first and second place winners from Mililani Mauka elementary, at their school assembly. The third place winner is Holly Harada from Iolani School. All three winners of the National Arbor Day Poster Contest were 5th grade students.

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